

Appl. No. 09/844,568
312 Amendment dated May 27, 2004
Reply to Notice of Allowance

Amendments To Claims

This listing of claims will replace all prior versions and listings of claims in the subject patent application.

Listing of Claims

Claim 1 (currently amended). An interconnect for an electrically driven solid electrolyte oxygen separation device comprising a composition of matter represented by the general formula:



wherein

Ln is La;

A is Sr;

B is Co;

~~0.3 < x < 0.5; 0.5 < x' < 0.7; 0 < x'' < 0.2;~~

~~0.9 < y < 1.05; and 0 < y' < 0.1;~~

~~0.3 ≤ x ≤ 0.5; 0.5 ≤ x' ≤ 0.7; 0 ≤ x'' ≤ 0.2;~~

~~0.9 < y < 1.05; and 0 ≤ y' ≤ 0.1;~~

provided that $x + x' + x'' = 1$ and $1.05 > y + y' \geq 1.02$

wherein δ is a number which renders the composition of matter charge neutral.

Claim 2 (previously presented): The electrochemical solid-state device of claim 13 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein Ln is La.

Claim 3 (previously presented): The electrochemical solid-state device of claim 13 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein A is Sr.

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Claim 4 (previously presented): The electrochemical solid-state device of claim 13 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein B is Co.

Claim 5 (previously presented): The electrochemical solid-state device of claim 13 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein $0.3 \leq x \leq 0.7$ and $0.3 \leq x' \leq 0.7$.

Claim 6 (previously presented): The electrochemical solid-state device of claim 13 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein x'' is 0.

Claim 7 (previously presented): The electrochemical solid-state device of claim 13 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein $0.9 < y < 1.2$ and $0 \leq y' \leq 0.1$.

Claim 8 (previously presented): The electrochemical solid-state device of claim 13 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein y' is 0.

Claim 9 (canceled).

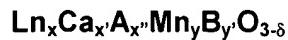
Claim 10 (canceled).

Claim 11 (previously presented): The electrochemical solid-state device of claim 15 wherein the at least one interconnect consisting of a single layer comprises a composition of matter wherein $0.3 \leq x \leq 0.7$.

Claim 12 (canceled).

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Claim 13 (previously presented): An electrochemical solid-state device comprising at least two electrochemical cells which are electrically connected in series by one or more interconnects wherein at least one interconnect consists of a single layer comprising a composition of matter represented by the formula



wherein

Ln is selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu;

A is selected from the group consisting of Sr, Ba and Y;

B is selected from the group consisting of Cu, Co, Cr, Fe, Ni, Zn, Nb, Zr, V, Ta, Ti, Al, Mg, and Ga;

$0.1 \leq x \leq 0.9$; $0.1 \leq x' \leq 0.9$; $0 \leq x'' \leq 0.5$;

$0.5 < y < 1.2$; and $0 \leq y' \leq 0.5$;

provided that $x + x' + x'' = 1$ and $1.2 > y + y' > 1.0$; and

wherein δ is a number which renders the composition of matter charge neutral.

Claim 14 (original): The electrochemical solid-state device of claim 13 wherein Ln is La, A is Sr, B is Co, $0.3 \leq x \leq 0.5$; $0.5 \leq x' \leq 0.7$; $0 \leq x'' \leq 0.2$; $0.9 < y < 1.05$; and $0 \leq y' \leq 0.1$; provided that $x + x' + x'' = 1$ and $1.05 > y + y' \geq 1.02$.

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Claim 15 (previously amended): An electrochemical solid-state device comprising at least two electrochemical cells which are electrically connected in series by one or more interconnects wherein at least one interconnect consists of a single layer comprising a composition of matter represented by the formula:



wherein

Ln is selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu;
 $0.1 \leq x \leq 0.9$; $0.1 \leq x' \leq 0.9$;
 $1.0 < y < 1.2$
provided that $x + x' = 1$; and
wherein δ is a number which renders the composition of matter charge neutral.

Claim 16 (original): The electrochemical solid-state device of Claim 15 wherein Ln is La, $0.3 \leq x \leq 0.5$ and $1.0 < y < 1.05$.